

REMARKS

Claims 1-14, 27, and 28 are pending in the present application. Claims 15-26 and 29-39 have been cancelled without prejudice or disclaimer to the subject matter contained therein. The Applicant reserves the right to file a divisional application directed to the subject matter of cancelled claims 15-26 and 29-39.

A. Rejection of Claims 1-3, 5, 27, and 28 under 35 U.S.C. §102(b)

Claims 1-3, 5, 27, and 28 have been rejected under 35 U.S.C. §102(b) as being anticipated by Griffith et al. (US Published Application 2002-0039050). This rejection is respectfully traversed in view of the above amendments to the claims.

As respectfully submitted above, original independent claim 1 is directed a phase-locked loop bandwidth calibration circuit, comprising a programmable charge pump; a phase-locked loop filter operatively connected to the programmable charge pump; an oscillator, operatively connected to the phase-locked loop filter, to generate a frequency signal based upon a signal received from the phase-locked loop filter; and a control loop operatively connected to the phase-locked loop filter and the programmable charge pump. The control loop, as set forth by original independent claim 1, controls the programmable charge pump to adjust its output current level based on a measured gain of the oscillator.

In formulating the rejection of claim 1, the Examiner alleges that Griffith et al. teaches a programmable charge pump; a phase-locked loop filter operatively connected to the programmable charge pump; an oscillator, operatively connected to the phase-locked loop filter, to generate a frequency signal based upon a signal received from the phase-locked loop filter; and a control loop operatively connected to the phase-locked loop filter and the programmable charge pump. Moreover, the Examiner alleges that Griffith et al. teaches, at paragraph [0024] that the control loop controls the programmable charge pump to adjust its output current level based on a measured gain of the oscillator. These positions by the Examiner are respectfully traversed.

Griffith et al. teaches, at paragraph [0024]:

Within the gain control processor 58, a magnitude of the amplified feedback signal may be measured and used to select an appropriate current gain for charge pumping within the charge pump 50. The amplified feedback signal may first be converted into a digital feedback signal within an analog to digital (A/D) converter 64. The digital feedback signal may then be used as an index to enter a lookup table 13 within the gain control processor 58 for recovery of an appropriate gain control word. With the appropriate gain control word, charge pumping may be controlled to a level appropriate to the operating point of the VCO 44. [Emphasis added.]

As taught by Griffith et al., the magnitude of the voltage-controlled oscillator's control voltage is measured and used to adjust the charge pump's level (gain). In contrast, the presently claimed invention specifically recites that the charge pump's level is adjusted based upon the measured gain of the voltage-controlled oscillator.

To make a measurement of the voltage-controlled oscillator's gain, a differential measurement of the voltage-controlled oscillator's control voltage is required. More specifically, to measure the voltage-controlled oscillator's gain, as claimed, the voltage-controlled oscillator's control voltage is measured at different times to determine a change (gain), thereby creating a differential measurement.

On the other hand, Griffith et al. specifically, teaches a single measurement of the magnitude of the voltage-controlled oscillator's control voltage wherein the single measurement, not differential measurement, is used to address a lookup table so as to determine the correct charge pump level setting. Griffith et al. fails to teach or anticipate the measuring of the voltage-controlled oscillator's gain, which is a differential measurement.

With respect to independent claim 27, the Examiner alleges that the inherent operation of the device disclosed by Griffith et al. meets all the limitations of independent claim 27. This position by the Examiner is respectfully traversed.

Independent claim 27 recites a method of calibrating a phase-locked loop bandwidth by (a) setting a phase-locked loop at a local oscillator offset; (b) allowing the phase-locked loop to

settle; (c) measuring a first voltage of a voltage-controlled oscillator located in the phase-locked loop; (d) setting the phase-locked loop to a channel center frequency; (e) allowing the phase-locked loop to settle; (f) measuring a second voltage of the voltage-controlled oscillator; (g) determining a difference between the first and second voltage measurements; and (h) controlling a programmable charge circuit located in the phase-locked loop to adjust its output current level based on the determined voltage difference.

Initially, it is improper for the Examiner to rely upon an inherency argument with respect to the operations of the disclosed device when the reference clearly discloses the operations of the disclosed device. Contrary to the Examiner's assertion, paragraphs [0020] through [0025] of Griffith et al. clearly disclose the operations of the disclosed device. More specifically, paragraphs [0020] through [0025] of Griffith et al. disclose that a magnitude of the voltage-controlled oscillator's control voltage is measured, converted to a digital signal, which is used to index a look-up table to recover the control word to adjust the programmable charge pump.

In contrast, independent claim 27 recites measuring a first voltage of a voltage-controlled oscillator located in the phase-locked loop; measuring a second voltage of the voltage-controlled oscillator; determining a difference between the first and second voltage measurements; and controlling a programmable charge circuit located in the phase-locked loop to adjust its output current level based on the determined voltage difference.

Therefore, since Griffith et al. discloses that a magnitude is measured, converted to a digital signal, which is used to index a look-up table to recover the gain control word to adjust the programmable charge pump, Griffith et al. fails to anticipate the determination of a gain difference and controlling a programmable charge circuit located in the phase-locked loop to adjust its output current level based on the determined gain difference.

Accordingly, in view of the above submitted amendments and remarks, the Examiner is respectfully requested to reconsider and withdraw this rejection under 35 U.S.C. §102(b).

B. Rejection of Claims 7 and 8 under 35 U.S.C. §103

Claims 7 and 8 have been rejected under 35 U.S.C. §103 as being unpatentable over Griffith et al. (US Published Application 2002-0039050) in view of Eriksson (US-A-5,986,512). This rejection is respectfully traversed.

With respect to dependent claims 7 and 8, these claims depend from allowable independent claim 1. The Applicant reserves the right to present arguments at a later date to support the patentability of dependent claims 7 and 8.

Accordingly, in view of the above remarks, the Examiner is respectfully requested to reconsider and withdraw this rejection under 35 U.S.C. §103.

C. Rejection of Claim 12 under 35 U.S.C. §103

Claim 12 has been rejected 35 U.S.C. §103 as being unpatentable over Griffith et al. (US Published Application 2002-0039050) in view of Kirkpatrick (US-A-6,476,681). This rejection is respectfully traversed.

With respect to dependent claim 12, this claim depends from allowable independent claim 9. The Applicant reserves the right to present arguments at a later date to support the patentability of dependent claim 12.

Accordingly, in view of the above remarks, the Examiner is respectfully requested to reconsider and withdraw this rejection under 35 U.S.C. §103.

D. Rejection of Claims 13 and 14 under 35 U.S.C. §103

Claims 13 and 14 have been rejected under 35 U.S.C. §103 as being unpatentable over Griffith et al. (US Published Application 2002-0039050) in view of Lo et al. (US Published Application 2002-0075091). This rejection is respectfully traversed.

With respect to dependent claims 13 and 14, these claims depend from allowable independent claim 9. The Applicant reserves the right to present arguments at a later date to support the patentability of dependent claims 13 and 14.


Accordingly, in view of the above remarks, the Examiner is respectfully requested to reconsider and withdraw this rejection under 35 U.S.C. §103.

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Conclusion

Accordingly, in view of the amendments and the reasons set forth above, the Examiner is respectfully requested to reconsider and withdraw the present rejections. Also, an early indication of allowability is earnestly solicited.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read "Matthew E. Connors", is written over a horizontal line.

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